3.3 Parcel 15 – Bldg 2700

3.3.1 Site Description

The Myer Center facility (Bldg 2700) is located in the CWA of FTMM at the intersection of Pearl Harbor Avenue and Corregidor Road. Bldg 2700 is a four-story building with a basement approximately 673,000 square feet in size. The building footprint totals approximately 171,000 square feet. It was built in 1954 and has an extensive history of laboratory operations, photoprocessing, and paint spraying booths. Various laboratory processes were noted in a 1955 Industrial Hygiene (IH) Survey, following the construction of the Myer Center. Operations included electrochemical research, growing and shaping of crystals, various plating operations, mixing of magnetic powders, machining, welding, spray painting, use of solvents for equipment cleaning, and other miscellaneous laboratory operations utilizing standard laboratory chemicals (15). By 1959, additional operations included shock and vibration testing of certain components; glass blowing; a plastics laboratory which made plastic castings, laminates, and forms sprayed with polyester resins; and a ceramics laboratory (16). A satellite dispensary and dental clinic was present in 1972 that serviced 2,610 employees (17). During the 2006 Visual Site Inspection (VSI) performed as part of the Phase I ECP, the Dental Clinic was no longer operational at Bldg 2700. According to FTMM personnel, no chemical wastes have been discharged to the sanitary sewer since the mid-1980s. Activities at Bldg 2700 have since been converted primarily to administrative functions. Current waste management practices prohibit the discharge of any materials, other than water and biodegradable soaps, into the sanitary sewer system. Additional information pertaining to this parcel can be found in Section 4.3.1, Section 4.3.2.1.4, Section 4.3.2.1.6, Section 4.3.2.2.2, Section 4.3.2.2.5, Section 4.3.2.2.6, Table 4-3, Table 5-1, Section 5.13.3, and Table 5-19 of the Phase I ECP (1).

Concurrent with the performance of the ECP, an HSA was conducted to evaluate the historical use of RAM at FTMM (3). The presence of RAM at FTMM has been predominantly limited to certain areas and functions of the installation. Historically, laboratory R&D in the areas of radio and electronics use of vacuum tubes and radium dials, the use of ionizing radiation-producing machines, and military support equipment such as night vision goggles that contain radioactive commodities, have been among the most common uses of RAM. Facilities, buildings, and rooms that contain or once contained equipment that produce X-rays via AC or DC sources of energy are not sources of radioactive contamination. This equipment, which includes medical and dental diagnostic X-ray machines, X-ray security inspection machines, X-ray diffraction, electron microscopes, X-ray fluorescence equipment, and some high voltage electron tubes, only produce ionizing radiation when energized. Operation of this equipment will result in ionizing radiation fields being produced in and around the equipment only while activated, but will not result in radioactive contamination. Much of the activities of the past were performed as part of the Signal Corps Laboratories, first housed in the Squier Building (Bldg 283) and then in the Myer Center (Bldg 2700). Other work was performed in the Evans Area of the base, which was closed in the late 1990s due to BRAC 1993 and the work transferred to the CECOM Safety Office and laboratory in the CWA.

Currently, only two active "wet labs" still exist in Bldg 2700; neither is for RAM. One wet lab (2C211) is used for battery testing and fabrication and the other (2D310) is used in the handling of crystals and welding (contains solvents and corrosives). Most rooms in the building today are computer labs and office space. Bldg 2700 originally had three radiological labs, which were completely renovated into administrative areas. The renovations, which included the removal of all laboratory equipment/furniture and the capping of all plumbing in those rooms, was performed approximately 10 years ago when ARL moved out of the building. No RAM have been used at this location since 1997, effectively qualifying the majority of the building as non-impacted. The Directorate of Public Works (DPW) contracted to remove all tritium exit signs in 2004 (Ameresco was the lighting replacement contractor). No indications of RAM or contamination were observed. An extract of the Radiation Inventory for Year 1995 shows the listing of a Photometer containing four sources of Carbon-14, totaling 200 microcuries. Data for this Photometer is unavailable, other than its listing as being identified with the Coding system as "C-04" and used in Bldg 2700, Room 4D312. Leak test data was not available since each source is less than the 100 microcurie limit requirement for leak testing of sealed sources. According to leak test data for other sealed sources used in this building (Cobalt-57 Mossbauer Source, Bldg 2700, Room 4C111), affected areas used for radioactive commodities indicate no contamination above the lower limits of detection, and therefore, no contamination would be present in the sinks leading to the Acid Neutralization Pit either (3).

Prior to the construction of Bldg 2700, Parcel 15 was occupied by buildings, latrines, warehouses, and a motor pool (14,18,19). Based on the time at which these previous facilities existed (1940s and early 1950s), it is likely that fuel oil was the primary heating fuel and individual USTs were likely utilized for the storage of fuel oil at each building. A review of documented UST removal locations versus the location of former buildings within Parcel 15 was conducted. Based on this review, it was determined that no UST removals have been documented to have occurred at the locations of numerous former buildings within Parcel 15.

3.3.2 Previous Investigations

U.S. Army Environmental Hygiene Agency (USAEHA) sampling of Bldg 2700 effluent from 1974-1975 showed discharges of the following wastewaters: alkaline cleaning agents, high concentrations of (hexavalent) chromium that were likely rinse water from a chrome plating operation, 93-94 percent sodium hydroxide slugs, sulfuric acid that was likely a dip solution used to activate a metal surface for plating, copper pickling waste, sodium dichromate as part of a cleaning agent, parabenzoquinone likely from photographic processing effluent, ammonium persulfate from the printed circuit manufacturing shop, and acetone. Samples were collected from each of the two former wastewater treatment lime pits (CW-1 and CW-2) serving Bldg 2700 prior to discharge to the CWA sewage treatment plant (STP). The purpose of the investigation was to characterize the wastewater because the FTMM STP was scheduled to be replaced by the local sewerage authority (20). The wastewater lime pits CW-1 and CW-2 were further evaluated under the IRP, as discussed below.

In fiscal year 1992, DPW personnel collected limestone and sludge samples from the CW-1 pit to evaluate the potential for environmental contaminants being present. Analytical testing of the sample material identified elevated levels of organic contaminants.

A cleanup action ensued which generated ninety-two 55-gallon drums of Resource Conservation and Recovery Act (RCRA) waste. Following the cleanup action, fresh limestone chips were placed into the pit as a precautionary measure. Current hazardous waste management practices prohibit the discharge of corrosive wastes into the wastewater treatment lime pit system. Due to the presence of elevated levels of organic contaminants being identified in the pit prior to the cleanup action, an SI was conducted to evaluate the potential impact to soil and groundwater.

Under the SI phase, soil borings were drilled on each side of the lime pit. Both soil and groundwater samples were analyzed for TCL+30 parameters and TAL metals. In reference to the four soil samples, no COCs were detected above NJDEP Direct Contact Soil Cleanup Criteria. TCE, PCE, and 1,2-DCE were detected in downgradient monitoring wells above NJDEP GWQC and remedial investigation (RI) activities were conducted.

Under the RI phase, a passive soil gas survey was conducted at the CW-1 site in March 1996 to delineate the extent of lateral soil contamination at the site and aid in the placement of additional monitoring wells. Results of the soil gas survey determined that COCs were migrating horizontally in site soil. Three new monitoring wells were installed at the CW-1 site during the first week of May 1996. One deep well was installed next to the lime pit to determine the vertical extent of contamination both in soil and groundwater. The other two wells were placed downgradient of the contaminant plume. The RI phase delineated the vertical and horizontal extent of the contaminant plume. At present, the contaminant plume has not reached the footprint of the Myer Center facility.

A remedial design was completed and approved by the NJDEP in August 1997. The selected remedial technologies involve using a combination of air sparging and soil vapor extraction (SVE) techniques. Construction of the selected remedial alternative was completed in April 1998. In January 2002, two groundwater recovery wells (RW-1 and RW-2) were installed in the source area and two additional air sparge points (SPG-3 and SPG-4) were installed to further enhance source area remediation. Groundwater recovery system wells RW-1 and RW-2 were connected to a newly constructed groundwater treatment system (GWTS). The GWTS is designed to capture and treat contaminated groundwater in the source area and reduce the elevated concentrations of detected chlorinated hydrocarbons as well as achieve hydraulic control in the source area and beyond. The GWTS utilizes an air stripper to remove dissolved-phase chlorinated hydrocarbons from impacted groundwater extracted from the recovery wells. The air stripper effluent is polished via two in-series 500-pound granular activated carbon units prior to final discharge to the sanitary sewer.

In addition to groundwater extraction, recovery wells RW-1 and RW-2 and source area monitoring wells MW-28 and MW-29 were tied into the SVE system to further enhance

removal of vapor phase chlorinated hydrocarbons in the source area. Air sparge wells SPG-1, SPG-2, SPG-3, and SPG-4 were installed to enhance the stripping of volatile chlorinated hydrocarbons from source area groundwater, where they are subsequently captured by the vapor extraction at RW-1, RW-2, MW-28, MW-29, SVE-1, and SVE- 2. The vapor phase carbon units were upgraded from two in-series 55-gallon drums to two in-series 1,000-pound vapor phase units capable of a substantial SVE airflow increase. The flow upgrade resulted in a substantial increase of contaminant mass removal rates. As part of the 2002 system upgrade, the wastewater treatment lime pit was demolished and all existing limestone was removed and properly disposed. A new sewer pipe was installed in order to maintain the existing sewer connection.

The GWTS was turned off in May of 2005 based upon groundwater monitoring data. Contaminant levels in the form of TCE have since rebounded at the site making it necessary to restart the system. The GWTS was restarted on October 11, 2007. Currently, twelve groundwater monitoring wells are sampled on a quarterly basis. The DPW will commence injecting hydrogen releasing compound (HRC) into site groundwater during FY08 with the goal of achieving groundwater compliance by FY11. Injection of HRC is subject to requirements pursuant to N.J.A.C 7:26E-4.1(a)4 and N.J.A.C. 7:26E-6.3(c) related to the performance of a pilot study and approval of a permit-by-rule.

The CW-2 site is the second wastewater treatment lime pit located next to the Myer Center facility (Bldg 2700). The CW-2 wastewater treatment lime pit is located on the east side of the Myer Center facility, near the former electrical substation. Site CW-2 has been investigated under the FTMM IRP. The wastewater treatment lime pit was constructed concurrently with the Myer Center facility in 1952. The pit was designed to treat corrosive wastes generated from laboratory activities operating within the facility. The pit was a concrete vault measuring 7 by 13 by 8 ft in height and contained limestone chips. Corrosive waste discharge lines originating from the south and east wings of Bldg 2700 were plumbed to the pit. The effluent discharge line exiting the pit was connected to the sanitary sewer.

In fiscal year 1992, DPW personnel collected limestone and sludge samples from the pit to evaluate the potential for environmental contaminants being present. Analytical testing of the sample material identified elevated levels of organic contaminants. A cleanup action ensued which generated ninety-one 55-gallon drums of RCRA waste. Following the cleanup action, fresh limestone chips were placed into the pit as a precautionary measure. Due to the presence of organic contaminants being identified in the pit prior to the cleanup action, the focus of the SI was to evaluate the potential impact to soil and groundwater. Under the SI phase, soil borings were drilled on each side of the lime pit. In the absence of field instrument readings and visible staining, one soil sample was collected from each boring at an interval just above the water table. In addition, each boring was converted to a monitoring well in order to evaluate groundwater quality.

Both soil and groundwater samples were analyzed for TCL+30 parameters and TAL metals. In reference to the four soil samples, only PCBs were detected in one soil

sample slightly above NJDEP Direct Contact Soil Cleanup Criteria. The PCB detection in soil (7 to 9 ft bgs) was measured at 0.75 mg/kg, which is below the NJDEP NRDCSCC of 2.0 mg/kg. PCE was detected in one downgradient monitoring well slightly above NJDEP GWQC. As of 2002, 19 consecutive quarterly rounds of groundwater samples had been collected for subsequent analysis. During August and October of 2000, low flow sampling techniques were employed at the four site monitoring wells. Laboratory results for arsenic and lead were detected below respective NJDEP GWQC. Under the RI phase, a passive soil gas survey commenced at the CW-2 site in December 1995. The purpose of the soil gas survey was to delineate the lateral extent of soil contamination at the site and to use the survey data to aid in the placement of additional monitoring wells, if required. Results of the soil gas survey were negative.

An RI report requesting an NFA determination was submitted to the NJDEP. No response has been received from the NJDEP. The CW-2 Wastewater Treatment Lime Pit was demolished in 2002. All limestone was removed from the pit prior to demolition activities, and the limestone was properly disposed.

3.3.3 Site Investigation Sampling

As discussed in **Section 3.3.2**, the former lime pits were formerly connected to the sanitary sewer and have been extensively investigated under the FTMM IRP. Groundwater associated with the former lime pits is addressed under the IRP. However, no evaluation of potential historical discharges to the stormwater system from Bldg 2700 has been conducted. A review of stormwater management plans and historical documents was conducted to evaluate potential discharge locations, and sediment sampling was conducted to evaluate the potential impact of previous Bldg 2700 activities to stormwater outfall locations associated with Bldg 2700.

A review of documented UST removal locations versus the location of former buildings within Parcel 15 was also conducted. Based on this review, it was determined that no UST removals have been documented at the locations of numerous former barracks within Parcel 15. In order to determine the absence/presence of formerly utilized USTs and the potential release from the USTs to the environment, geophysical surveys, soil sampling, and groundwater sampling were conducted north, northeast, and southwest of Bldg 2700.

Through previous investigations conducted under the IRP, groundwater VO contamination has been identified in close proximity to Bldg 2700. Per NJDEP guidance and consistent with USEPA policy, the NJDEP recommends investigation of VI where structures are within 100 ft horizontally or vertically of shallow groundwater contamination in excess of GWSLs (12). Soil gas and indoor air samples were collected in association with Bldg 2700 to evaluate the potential for VI at this facility.

Sediment Investigation

A total of seven sediment samples (including one duplicate sample) were collected from three stormwater outfall locations within Shrewsbury Creek. Two samples were collected from each location; one from the 0- to 6-inch interval, and the other from the 18- to 24-inch interval, measured from the bottom of the creek.

Vapor Intrusion Investigation

The downgradient migration pathway for VO (chlorinated ethenes) contaminants is in the direction of Bldg 2700, and these contaminants have been detected above the GWSLs within 100 ft of Bldg 2700. Therefore, VI at Bldg 2700 was further evaluated through the collection of near-slab soil gas samples and indoor air samples in December 2007. Upon review of building plans and discussions with building personnel, it was determined that the floors in the basement and ground levels of Bldg 2700 are approximately 24 inches thick and constructed of reinforced concrete. Therefore, indoor air samples were conducted in lieu of the sub-slab soil gas samples proposed in the SI work plan.

Geophysical Survey Investigation

An EM survey was conducted throughout the area of the parcel where former barracks were identified to determine if USTs are present. Follow-up GPR surveys were conducted where anomalies were identified during the EM surveys. **Section 2.1** summarizes the methodologies utilized during the geophysical surveys.

Geoprobe® Investigation

Geoprobe® soil and groundwater samples were collected in October 2007 in Parcel 15 in order to investigate potential releases from historic USTs associated with former barrack areas around Bldg 2700. A total of 53 surface soil samples and 59 subsurface soil samples (including six duplicate samples) were collected from 53 distinct Geoprobe® borings (**Figure 3.3-1**). Soil borings located north of Bldg 2700 were conducted on 50-ft centers due to the dense spacing of previous barracks in this area. Boring locations southwest and northeast of Bldg 2700 were conducted on 100-ft centers. Surface soil samples for non-VO analysis were collected from the 0- to 6-inch interval bgs. For borings located in paved areas, non-VO surface soil samples were collected from the 0- to 6-inch interval directly below the pavement sub-base. Surface soil samples collected for VO analysis were collected from the 18- to 24-inch bgs interval. Subsurface soil samples were collected from the 6-inch interval directly above the water table from each boring. Field screening of the soil boring cores was conducted using a PID/FID meter.

Seven groundwater samples (including one duplicate sample) were collected from six distinct temporary wells that were installed. Temporary wells were installed along the downgradient boundary of the parcel (along Shrewsbury Creek) and were constructed of PVC and 5 ft of factory-slotted screen. Groundwater samples were collected for the

dual purpose of investigating any potential release from possible former heating oil USTs associated with former barracks and other potential discharges from historic activities at Bldg 2700. The SI work plan specified that previously installed monitoring well UST-2337-65 was to be used as a reference for comparison with Geoprobe® results. However, the monitoring well could not be located and therefore was not sampled.

Table 3.3-1 presents a summary of all field activities. Sample locations are provided on **Figure 3.3-1**. **Table 3.3-2** provides a summary of the sediment sampling, soil gas and indoor air sampling, and Geoprobe® soil and groundwater sampling activities, including sample IDs, collection dates, and analytical parameters.

Table 3.3-1
Parcel 15 Sampling Location, Rationale and Analytical

Sample Location	Sample Media	Sample Location Rationale	Analytical Suite
Former Barracks Areas (three areas – 9 acres total)	A geophysical survey was conducted to target areas within the parcel in which barracks formerly existed to determine if formerly used USTs are present. The geophysical investigation consisted of an EM survey followed by targeted a GPR survey of anomalies identified by the EM survey.		
P15-A1 through P15-A18 (18 samples)	Surface soil	Soil samples were collected from the 0- to 6-inch bgs interval from Geoprobe® soil borings in a grid configuration (conducted on 50-ft centers due to close spacing of former barracks in this area) to investigate the potential release from former heating oil USTs associated with the former barracks north of Bldg 2700. If the sample location was paved, the sample was collected from the 0- to 6-inch interval below the pavement sub-base.	TPHC, VO+10 (25% of TPHC > 1,000 mg/kg)
P15-A1 through P15-A18 (19 samples – includes 1 duplicate sample)	Subsurface soil	Soil samples were collected from the 6-inch interval directly above the water table (ranging from 3 to 12.5 ft bgs) from each Geoprobe® soil boring in the grid (conducted on 50-ft centers due to close spacing of former barracks in this area) to investigate the potential release from former heating oil USTs associated with the former barracks north of Bldg 2700. Field screening of the entire Geoprobe® soil core was conducted using PID/FID meters.	TPHC, VO+10 (25% of TPHC > 1,000 mg/kg)
P15-B1 through P15-E4 (13 samples)	Surface soil	Soil samples were collected from the 0- to 6-inch bgs interval from Geoprobe® soil borings in a grid configuration (conducted on 100-ft centers) to investigate the potential release from former heating oil USTs associated with the former barracks northeast of Bldg 2700. If the sample location was paved, the sample was collected from the 0- to 6-inch interval below the pavement sub-base.	TPHC, VO+10 (25% of TPHC > 1,000 mg/kg)

Sample Location	Sample Media	Sample Location Rationale	Analytical Suite
P15-B1 through P15-E4 (15 samples – includes 2 duplicate samples)	Subsurface soil	Soil samples were collected from the 6-inch interval directly above the water table (ranging from 5 to 9 ft bgs) from each Geoprobe® soil boring in the grid (conducted on 100-ft center) to investigate the potential release from former heating oil USTs associated with the former barracks northeast of Bldg 2700. Field screening of the entire Geoprobe® soil core was conducted using PID/FID meters.	TPHC, VO+10 (25% of TPHC > 1,000 mg/kg)
P15-F1 through P15-K6 (22 samples)	Surface soil	Soil samples were collected from the 0- to 6-inch bgs interval from Geoprobe® soil borings in a grid configuration (conducted on 100-ft centers) to investigate the potential release from former heating oil USTs associated with the former barracks southwest of Bldg 2700. If the sample location was paved, the sample was collected from the 0- to 6-inch interval below the pavement sub-base.	TPHC, VO+10 (25% of TPHC > 1,000 mg/kg)
P15-F1 through P15-K6 (25 samples – includes 3 duplicate samples)	Subsurface soil	Soil samples were collected from the 6-inch interval directly above the water table (ranging from 2.5 to 15 ft bgs) from each Geoprobe® soil boring in the grid (conducted on 100-ft centers) to investigate the potential release from former heating oil USTs associated with the former barracks southwest of Bldg 2700. Field screening of the entire Geoprobe® soil core was conducted using PID/FID meters.	TPHC, VO+10 (25% of TPHC > 1,000 mg/kg)
15GW-1 through 15GW-6 (7 samples – includes 1 duplicate sample)	Groundwater	Groundwater samples were collected from the specified Geoprobe® borings to investigate the potential release from former heating oil USTs associated with the former barracks and former industrial processes associated with Bldg 2700.	TCL+30 (w/o pesticides or PCBs), TAL Metals
Monitoring well UST-2337-65 (No samples)	Groundwater	A monitoring well was selected for sampling based on its location on referenced maps to investigate the potential release from former heating oil USTs associated with the former barracks and to use as a reference for comparison with Geoprobe® results. The monitoring well could not be located and therefore was not sampled.	Not Sampled
15SD-1, 2 and 3 (3 samples)	Sediment	Sediment samples were collected from the 0- to 6-inch bgs interval to investigate potential historic discharges from Bldg 2700. Samples were collected at the discharge points of an underground stream diversion near the southwest end of Bldg 2525; 30-inch reinforced concrete stormwater pipe outfall; and an additional outfall location noted during site visit. All sample locations were south of the walking bridge near the southwest portion of Bldg 2525 on the western side of Shrewsbury Creek.	TCL+30 (w/o pesticides), TAL Metals

Sample Location	Sample Media	Sample Location Rationale	Analytical Suite
15SD-1D, 2D, and 3D (4 samples – includes 1 duplicate sample)	Sediment	Sediment samples were collected from the 6-inch interval from 18 to 24 inches bgs to investigate potential historic discharges from Bldg 2700.	TCL+30 (w/o pesticides), TAL Metals
15SG-1 through 15SG-15	Near-slab soil gas	15 near-slab soil gas samples were collected at Bldg 2700. Groundwater flow direction is from the west and VOs have been detected above GWSLs within the courtyard of Bldg 2700. Therefore, 12 sample locations were biased to the walls of Bldg 2700 on the east side of the courtyard downgradient of the detected contaminants. Three locations were biased to the walls of Bldg 2700 on the west side of the courtyard due to close proximity of the building to groundwater contamination.	NJDEP – SRWM USEPA TO-15 Method
15IA-1 through 15IA-15	Indoor Air samples	15 sub-slab soil gas samples were originally proposed to be collected in the western portion of Bldg 2700 in central locations of the basement. Because this is an active laboratory facility and material is stored in the basement that could contribute to positive detections of VOs in indoor air (paint storage), sub-slab soil gas samples were proposed to be sampled in lieu of indoor air within the basement in order to determine VI contributions from groundwater contamination. However, due to the thickness of the reinforced concrete basement floors (18 to 24 inches); indoor air samples were collected in lieu of sub-slab soil gas samples.	NJDEP – SRWM USEPA TO-15 Method

3.3.4 Site Investigation Results

Geophysical Survey Results

The EM survey identified a total of 41 target EM anomalies. The survey areas are presented on **Figure 3.3-1**. This area was scanned with the EM-61 because the parking lots which comprise most of the area could only be cordoned off in small portions and the EM-61 towing rig is better suited for the necessary tight turns. Several areas in this parcel were scanned with only the TW-6 due to interference of the GPS signal by nearby buildings and trees and the presence of parked cars during the EM survey.

This parcel of FTMM has been previously developed and the land surface reworked multiple times throughout its history. The findings of the geophysical survey (the density and small size of anomalies) are consistent with the site history. No metallic anomalies interpreted to be a UST were delineated.

The results of the GPR/TW-6 follow-up scanning are listed in **Table 3.3-3** and full results of the geophysical surveys are included in **Appendix A**. In summary, GPR scanning of the 41 targets revealed:

- Nine targets that were associated with surface metal/debris (previously unaccounted for).
- Thirty-one targets with moderate-amplitude near-surface point target reflections indicative of areas containing small pieces of buried debris; not indicative of a UST.
- One target with the moderate-amplitude parabolic scattered reflections indicative of small pieces of scattered debris; not indicative of a UST.

Sediment Investigation Results

Sediment samples were analyzed for TCL+30 (without pesticides). Shrewsbury Creek is a non-tidal water body in this portion of the facility; therefore, sediment analytical results were evaluated in relation to the Freshwater Sediment Screening Values-LEL.

A total of 12 B/Ns and 18 metals were detected in Parcel 15 sediment samples, presented in **Table 3.3-4**. Two B/Ns (acenaphthene and fluorene) were detected at concentrations that exceeded the LEL. Of the 18 metals, two (chromium and copper) were detected at concentrations that exceeded the LEL. No constituents were detected at concentrations greater than the SEL.

Chromium was detected above the LEL of 26 mg/kg in all seven sediment samples (including one duplicate sample) collected in Parcel 15 at concentrations ranging from 29.4 mg/kg in sample 15SD-1 to 73.4 mg/kg in sample 15SD-3D (**Figure 3.3-1**). The chromium concentrations in four of the samples also exceeded the Charles Wood Background Concentration (CWBC) of 36.9 mg/kg. Thus, chromium is considered a COC in the Parcel 15 sediment.

Copper was detected above the LEL of 16 mg/kg in one sediment sample (the duplicate analysis of sample 15SD-2D) at a concentration of 19.5 mg/kg. However, the copper concentration of 19.5 mg/kg is below the CWBC of 24.5 mg/kg. Thus, copper is not a COC in the Parcel 15 sediment. The copper concentration detected in sample 15SD-2D was 13.6 mg/kg, below the LEL for copper. The COCs are presented on **Figure 3.3-1**.

Vapor Intrusion Investigation Results

Sample locations and detections above the NJDEP Soil Gas Screening Levels are presented on **Figure 3.3-2**.

A total of 32 VOs were detected in Parcel 15 soil gas samples. Of the 32 VOs detected, four (benzene, PCE, TCE, and vinyl chloride) were detected at concentrations that exceeded NJDEP Soil Gas Non-Residential Standards (NRSs). As shown in **Table 3.3-**

5, benzene was detected above the standard of 26 micrograms per cubic meter ($\mu g/m^3$) in three of the 15 soil gas samples at concentrations ranging from 39 $\mu g/m^3$ in sample 15SG-13 to 90.7 $\mu g/m^3$ in sample 15SG-14. PCE was detected above the standard of 36 $\mu g/m^3$ in 11 of the 15 soil gas samples at concentrations ranging from 47 $\mu g/m^3$ in sample 15SG-12 to 149 $\mu g/m^3$ in sample 15SG-1. TCE was detected above the standard of 27 $\mu g/m^3$ in three of the 15 soil gas samples at concentrations ranging from 55.9 $\mu g/m^3$ in sample 15SG-4 to 506 $\mu g/m^3$ in sample 15-SG-2. Vinyl chloride was detected above the standard of 48 $\mu g/m^3$ in one of the 15 samples at a concentration of 73.9 $\mu g/m^3$ in soil gas sample 15SG-10.

Indoor air analytical results are summarized in **Table 3.3-6**. No constituents were detected at concentrations above the NJDEP Indoor Air Non-Residential or Residential Standards. A total of 22 VOs were detected at low concentrations below NJDEP Indoor Air Non-Residential and Residential Standards.

Geoprobe® Investigation Results

Surface and subsurface soil samples were analyzed for TPHC. Corresponding surface and subsurface soil samples were collected for contingent VO+10 analysis. Groundwater samples were analyzed for VO+10, B/N+15, and TAL metals.

Soil

Soil TPHC analytical results are presented in **Table 3.3-7**. TPHC was detected in seven of the 53 surface soil samples and in two of the 59 subsurface soil samples. None of the TPHC results exceeded the NJDEP NRDCSCC and RDCSCC of 10,000 mg/kg, and no detections were greater than 1,000 mg/kg; therefore, no VO analysis for soil was required.

Groundwater

One VO, toluene, was detected at a concentration of 0.65 $\mu g/L$, which is below the GWQC of 600 $\mu g/L$.

One B/N, bis(2-ethylhexyl)phthalate, was detected in Parcel 15 groundwater samples. As shown in **Table 3.3-8**, bis(2-ethylhexyl)phthalate was detected in 15GW-3 at a concentration of 3.74 $\mu g/L$ and in 15GW-4 at a concentration of 4.04 $\mu g/L$, which exceed the NJDEP GWQC of 3 $\mu g/L$. Bis(2-ethylhexyl)phthalate was not detected in the duplicate sample collected at 15GW-3 (15GW-3DUP). A commonly used plasticizer, bis(2-ethylhexyl)phthalate, is present in a wide variety of plastic products, is commonly detected in field and laboratory QC samples, and was detected in the field blank associated with Parcel 15 groundwater sampling. The contamination in the field blank was most likely the result of the polyethylene sampling tube that is commonly used for sampling wells. Therefore, it is not considered a COC in groundwater at Parcel 15.

A total of 19 metals were detected in Parcel 15 groundwater samples. Of the 19 metals detected, six (aluminum, arsenic, iron, lead, manganese, and sodium) were detected above the respective GWQC. All sample results are presented in **Table 3.3-8**.

As discussed in the 1995 Site Investigation Report (47), several natural and anthropogenic factors contribute to the wide range in concentrations of metals in soils, which further impact the concentration of metals in groundwater. Soils derived from glauconitic sands contain abundant aluminum, calcium, potassium, iron, magnesium, manganese, and sodium (among others), which are likely to be present at elevated concentrations in the groundwater, particularly when sediments are entrained in the collected groundwater samples. Aluminum, iron, manganese, and sodium were detected in Parcel 15 groundwater samples, collected from temporary wells, at concentrations above the NJDEP GWQC. Aluminum, iron, manganese, and sodium are regarded as naturally occurring metals within the native soil types at FTMM and are not considered COCs. The remaining metals detected in samples collected from temporary wells were compared to the respective GWQC and MBCs to determine COCs requiring further evaluation. The COCs are presented on **Figure 3.3-1**.

Arsenic was detected at concentrations exceeding the NJDEP GWQC of 3 μg/L in two samples, 15GW-1 (4.41 μg/L) and 15GW-4 (7.47 μg/L). However, these concentrations did not exceed the CWBC of 25.1 μg/L. In addition, arsenic is associated with the native glauconitic sands (48). The elevated arsenic concentrations in the native soil in turn influence the arsenic levels in groundwater. Lead was detected at a concentration exceeding the NJDEP GWQC of 5 μg/L in one sample (15GW-6) at a concentration of 6.41 μg/L. However, the lead concentration did not exceed the CWBC of 7.3 μg/L. Thus, arsenic and lead are not considered COCs in Parcel 15 groundwater.

3.3.5 Summary and Conclusions

No suspected USTs were identified as a result of the geophysical surveys, and no constituents were identified above applicable NJDEP criteria in surface or subsurface soil. Four naturally occurring metal constituents common to local soils, aluminum, iron, manganese, and sodium, were detected at concentrations greater than the NJDEP GWQC. As discussed in detail in **Section 2.3.1**, high concentrations of aluminum, iron, manganese, and sodium are expected to occur due to the chemical nature of glauconitic quartzose sands deposited throughout FTMM. Since these native metals are attributed to the aquifer material and are not site-related, these metals are not considered COCs.

Two metal constituents, arsenic and lead, were detected at concentrations slightly above the NJDEP GWQC, but were detected at sporadic locations and at low concentrations from temporary well points. In addition, arsenic and lead were detected at concentrations below the CWBC. NFA is recommended for soil and groundwater within Parcel 15.

Four VOs, benzene, PCE, TCE, and vinyl chloride, exceeded NJDEP Soil Gas NRSs in soil gas at Parcel 15. No VOs, including constituents present in groundwater proximal to Bldg 2700 (chlorinated ethenes), were detected in indoor air at Bldg 2700 at concentrations above the NJDEP Indoor Air NRSs. Based on NJDEP VI guidance (12), a second round of indoor air sampling is recommended if indoor air sampling results are within 1 order of magnitude of the IASLs. Benzene was detected within one order of magnitude of the IASL in indoor air samples and was also detected in near slab soil gas samples at concentrations greater than the Soil Gas NRSs. One additional round of indoor air sampling is recommended to confirm that constituents present in groundwater are not present above applicable criteria in indoor air at Bldg 2700.

Two B/Ns (acenaphthene and fluorene) and one metal (chromium) were detected in sediment at concentrations greater than the Freshwater Sediment Screening Values-LEL. Sediment at Parcel 15 is recommended for further evaluation and will be included as part of a facility-wide baseline ecological evaluation.

Table 3.3-2
Parcel 15 Sample and Analytical Summary

Media	Type	Field Sample #	Sample Date	Sample Time	Begin Depth	End Depth	TPHC	VO+15	B\N+15	PCBs	TAL Metals	Cyanide	Mercury	Ammonia/ Nitrate/ Nitrite	COMMENTS/VARIANCES
BLANK	TRIP	TRIP BLANK-SO	10/22/07	7:00	--	--	NA								
SOIL	GEOPROBE	P15-A1-A	10/22/07	8:40	0.0	0.5	X								
SOIL	GEOPROBE	P15-A1-B	10/22/07	8:40	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A1-C	10/22/07	9:20	12.5	13.0	X								
SOIL	GEOPROBE	P15-A2-A	10/22/07	9:50	0.0	0.5	X								
SOIL	GEOPROBE	P15-A2-B	10/22/07	9:50	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A2-C	10/22/07	10:00	11.5	12.0	X								
SOIL	GEOPROBE	P15-A3-A	10/22/07	10:25	0.0	0.5	X								
SOIL	GEOPROBE	P15-A3-B	10/22/07	10:25	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A3-C	10/22/07	10:45	11.5	12.0	X								
SOIL	GEOPROBE	P15-A4-A	10/22/07	10:55	0.0	0.5	X								
SOIL	GEOPROBE	P15-A4-B	10/22/07	10:55	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A4-C	10/22/07	11:25	11.5	12.0	X								
SOIL	GEOPROBE	P15-A4-C DUPLICATE	10/22/07	11:25	11.5	12.0									No duplicate collected this day. Sample on chain but not received by lab.
SOIL	GEOPROBE	P15-A5-A	10/22/07	11:35	0.0	0.5	X								
SOIL	GEOPROBE	P15-A5-B	10/22/07	11:35	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A5-C	10/22/07	11:55	11.5	12.0	X								
BLANK	FIELD	FIELD BLANK-SO	10/22/07	13:20	--	--	X								
SOIL	GEOPROBE	P15-A6-A	10/22/07	13:30	0.0	0.5	X								
SOIL	GEOPROBE	P15-A6-B	10/22/07	13:30	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A6-C	10/22/07	13:30	3.0	3.5	X								
SOIL	GEOPROBE	P15-A7-A	10/22/07	13:50	0.0	0.5	X								
SOIL	GEOPROBE	P15-A7-B	10/22/07	13:50	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A7-C	10/22/07	14:10	9.5	10.0	X								
SOIL	GEOPROBE	P15-A8-A	10/22/07	14:45	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-A8-B	10/22/07	14:45	1.5	2.0	NA								

Table 3.3-2
Parcel 15 Sample and Analytical Summary

Media	Type	Field Sample #	Sample Date	Sample Time	Begin Depth	End Depth	TPHC	VO+15	BN+15	PCBs	TAL Metals	Cyanide	Mercury	Ammonia/ Nitrate/ Nitrite	COMMENTS/VARIANCES
SOIL	GEOPROBE	P15-A8-C	10/22/07	15:05	9.5	10.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-A10-A	10/22/07	15:25	0.0	0.5	X								
SOIL	GEOPROBE	P15-A10-B	10/22/07	15:25	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A10-C	10/22/07	15:30	3.0	3.5	X								
BLANK	TRIP	TRIP BLANK	10/23/07	7:00	--	--	NA								
SOIL	GEOPROBE	P15-A9-A	10/23/07	7:45	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-A9-B	10/23/07	7:45	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A9-C	10/23/07	8:05	10.5	11.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-A11-A	10/23/07	8:25	0.0	0.5	X								
SOIL	GEOPROBE	P15-A11-B	10/23/07	8:25	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A11-C	10/23/07	8:50	11.5	12.0	X								
SOIL	GEOPROBE	P15-A12-A	10/23/07	9:05	0.0	0.5	X								
SOIL	GEOPROBE	P15-A12-B	10/23/07	9:05	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A12-C	10/23/07	9:20	3.5	4.0	X								
SOIL	GEOPROBE	P15-A13-A	10/23/07	9:55	0.0	0.5	X								
SOIL	GEOPROBE	P15-A13-B	10/23/07	9:55	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A13-C	10/23/07	10:15	8.5	9.0	X								
SOIL	GEOPROBE	P15-A13-C DUPLICATE	10/23/07	10:15	8.5	9.0	X								
SOIL	GEOPROBE	P15-A14-A	10/23/07	10:30	0.0	0.5	X								
SOIL	GEOPROBE	P15-A14-B	10/23/07	10:30	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A14-C	10/23/07	10:40	6.5	7.0	X								
SOIL	GEOPROBE	P15-A15-A	10/23/07	10:50	0.0	0.5	X								
SOIL	GEOPROBE	P15-A15-B	10/23/07	10:50	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A15-C	10/23/07	11:05	7.0	7.5	X								
SOIL	GEOPROBE	P15-A16-A	10/23/07	13:15	0.0	0.5	X								

Table 3.3-2
Parcel 15 Sample and Analytical Summary

Media	Type	Field Sample #	Sample Date	Sample Time	Begin Depth	End Depth	TPHC	VO+15	B\N+15	PCBs	TAL Metals	Cyanide	Mercury	Ammonia/ Nitrate/ Nitrite	COMMENTS/VARIANCES
SOIL	GEOPROBE	P15-A16-B	10/23/07	13:15	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A16-C	10/23/07	13:35	5.5	6.0	X								
SOIL	GEOPROBE	P15-A17-A	10/23/07	13:45	0.0	0.5	X								
SOIL	GEOPROBE	P15-A17-B	10/23/07	13:45	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A17-C	10/23/07	13:50	5.5	6.0	X								
SOIL	GEOPROBE	P15-A18-A	10/23/07	14:05	0.0	0.5	X								
SOIL	GEOPROBE	P15-A18-B	10/23/07	14:05	1.5	2.0	NA								
SOIL	GEOPROBE	P15-A18-C	10/23/07	14:15	5.5	6.0	X								
BLANK	FIELD	FIELD BLANK	10/23/07	14:20	--	--	X								
BLANK	TRIP	TRIP BLANK	10/24/07	7:00	--	--	NA								
SOIL	GEOPROBE	P15-J6-A	10/24/07	7:55	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-J6-B	10/24/07	7:55	1.5	2.0	NA								
SOIL	GEOPROBE	P15-J6-C	10/24/07	8:05	6.0	6.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-J5-A	10/24/07	8:30	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-J5-B	10/24/07	8:30	1.5	2.0	NA								
SOIL	GEOPROBE	P15-J5-C	10/24/07	8:40	6.0	6.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-J4-A	10/24/07	9:40	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-J4-B	10/24/07	9:40	1.5	2.0	NA								
SOIL	GEOPROBE	P15-J4-C	10/24/07	9:40	3.0	3.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.

Table 3.3-2
Parcel 15 Sample and Analytical Summary

Media	Type	Field Sample #	Sample Date	Sample Time	Begin Depth	End Depth	TPHC	VO+15	BN+15	PCBs	TAL Metals	Cyanide	Mercury	Ammonia/ Nitrate/ Nitrite	COMMENTS/VARIANCES
SOIL	GEOPROBE	P15-J3-A	10/24/07	11:15	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-J3-B	10/24/07	11:15	1.5	2.0	NA								
SOIL	GEOPROBE	P15-J3-C	10/24/07	11:25	7.0	7.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-J2-A	10/24/07	13:15	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-J2-B	10/24/07	13:15	1.5	2.0	NA								
SOIL	GEOPROBE	P15-J2-C	10/24/07	13:30	8.0	8.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-J1-A	10/24/07	13:45	0.0	0.5	X								
SOIL	GEOPROBE	P15-J1-B	10/24/07	13:45	1.5	2.0	NA								
SOIL	GEOPROBE	P15-J1-C	10/24/07	14:05	11.5	12.0	X								
BLANK	FIELD	FIELD BLANK	10/24/07	13:00	--	--	X								
SOIL	GEOPROBE	P15-K1-A	10/24/07	14:20	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-K1-B	10/24/07	14:20	1.5	2.0	NA								
SOIL	GEOPROBE	P15-K1-C	10/24/07	14:35	10.0	10.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-K2-A	10/24/07	15:15	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-K2-B	10/24/07	15:15	1.5	2.0	NA								
SOIL	GEOPROBE	P15-K2-C	10/24/07	15:20	8.0	8.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.

Table 3.3-2
Parcel 15 Sample and Analytical Summary

Media	Type	Field Sample #	Sample Date	Sample Time	Begin Depth	End Depth	TPHC	VO+15	B\N+15	PCBs	TAL Metals	Cyanide	Mercury	Ammonia/ Nitrate/ Nitrite	COMMENTS/VARIANCES
SOIL	GEOPROBE	P15-K2-C DUPLICATE	10/24/07	15:20	8.0	8.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
BLANK	TRIP	TRIP BLANK	10/25/07	7:00	--	--	NA								
SOIL	GEOPROBE	P15-K3-A	10/25/07	8:10	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-K3-B	10/25/07	8:10	1.5	2.0	NA								
SOIL	GEOPROBE	P15-K3-C	10/25/07	8:20	8.0	8.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-K4-A	10/25/07	8:55	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-K4-B	10/25/07	8:55	1.5	2.0	NA								
SOIL	GEOPROBE	P15-K4-C	10/25/07	9:05	8.0	8.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-K5-A	10/25/07	9:30	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-K5-B	10/25/07	9:30	1.5	2.0	NA								
SOIL	GEOPROBE	P15-K5-C	10/25/07	11:15	4.0	4.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-K6-A	10/25/07	11:45	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-K6-B	10/25/07	11:45	1.5	2.0	NA								
SOIL	GEOPROBE	P15-K6-C	10/25/07	11:45	4.0	4.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-I1-A	10/25/07	13:30	0.0	0.5	X								
SOIL	GEOPROBE	P15-I1-B	10/25/07	13:30	1.5	2.0	NA								

Table 3.3-2
Parcel 15 Sample and Analytical Summary

Media	Type	Field Sample #	Sample Date	Sample Time	Begin Depth	End Depth	TPHC	VO+15	B\N+15	PCBs	TAL Metals	Cyanide	Mercury	Ammonia/ Nitrate/ Nitrite	COMMENTS/VARIANCES
SOIL	GEOPROBE	P15-I1-C	10/25/07	13:50	11.5	12.0	X								
SOIL	GEOPROBE	P15-I2-A	10/25/07	14:15	0.0	0.5	X								
SOIL	GEOPROBE	P15-I2-B	10/25/07	14:15	1.5	2.0	NA								
SOIL	GEOPROBE	P15-I2-C	10/25/07	14:30	9.5	10.0	X								
SOIL	GEOPROBE	P15-I2-C DUPLICATE	10/25/07	14:30	9.5	10.0	X								
BLANK	FIELD	FIELD BLANK	10/25/07	14:40	--	--	X								
SOIL	GEOPROBE	P15-I3-A	10/25/07	15:15	0.0	0.5	X								
SOIL	GEOPROBE	P15-I3-B	10/25/07	15:15	1.5	2.0	NA								
SOIL	GEOPROBE	P15-I3-C	10/25/07	15:20	6.5	7.0	X								
SOIL	GEOPROBE	P15-H2-A	10/25/07	15:40	0.0	0.5	X								
SOIL	GEOPROBE	P15-H2-B	10/25/07	15:40	1.5	2.0	NA								
SOIL	GEOPROBE	P15-H2-C	10/25/07	16:00	11.0	11.5	X								
BLANK	TRIP	TRIP BLANK	10/26/07	7:00	--	--	NA								
SOIL	GEOPROBE	P15-H1-A	10/26/07	8:00	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-H1-B	10/26/07	8:00	1.5	2.0	NA								
SOIL	GEOPROBE	P15-H1-C	10/26/07	8:15	12.0	12.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-G1-A	10/26/07	8:45	0.0	0.5	X								
SOIL	GEOPROBE	P15-G1-B	10/26/07	8:45	1.5	2.0	NA								
SOIL	GEOPROBE	P15-G1-C	10/26/07	9:00	11.5	12.0	X								
SOIL	GEOPROBE	P15-G2-A	10/26/07	9:45	0.0	0.5	X								
SOIL	GEOPROBE	P15-G2-B	10/26/07	9:45	1.5	2.0	NA								
SOIL	GEOPROBE	P15-G2-C	10/26/07	10:20	13.0	13.5	X								
SOIL	GEOPROBE	P15-F1-A	10/26/07	10:40	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-F1-B	10/26/07	10:40	1.5	1.5	NA								

Table 3.3-2
Parcel 15 Sample and Analytical Summary

Media	Type	Field Sample #	Sample Date	Sample Time	Begin Depth	End Depth	TPHC	VO+15	BN+15	PCBs	TAL Metals	Cyanide	Mercury	Ammonia/ Nitrate/ Nitrite	COMMENTS/VARIANCES
SOIL	GEOPROBE	P15-F1-C	10/26/07	11:10	15.5	16.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-F2-A	10/26/07	11:40	0.0	0.5	X								
SOIL	GEOPROBE	P15-F2-B	10/26/07	11:40	1.5	2.0	NA								
SOIL	GEOPROBE	P15-F2-C	10/26/07	11:50	5.5	6.0	X								
SOIL	GEOPROBE	P15-F3-A	10/26/07	13:15	0.0	0.5	X								
SOIL	GEOPROBE	P15-F3-B	10/26/07	13:15	1.5	2.0	NA								
SOIL	GEOPROBE	P15-F3-C	10/26/07	13:20	3.0	3.5	X								
SOIL	GEOPROBE	P15-F3-C DUPLICATE	10/26/07	13:20	3.0	3.5	X								Duplicate on chain of custody but not received by lab. Sample P15-F3-C was split to make duplicate.
BLANK	FIELD	FIELD BLANK	10/26/07	13:30	--	--	X								
BLANK	TRIP	TRIP BLANK	10/27/07	7:00	--	--	NA								
SOIL	GEOPROBE	P15-B1-A	10/27/07	8:00	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-B1-B	10/27/07	8:00	1.5	2.0	NA								
SOIL	GEOPROBE	P15-B1-C	10/27/07	8:20	9.5	10.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-B2-A	10/27/07	8:35	0.0	0.5	X								
SOIL	GEOPROBE	P15-B2-B	10/27/07	8:35	1.5	2.0	NA								
SOIL	GEOPROBE	P15-B2-C	10/27/07	8:45	7.5	8.0	X								
SOIL	GEOPROBE	P15-B2-C DUPLICATE	10/27/07	8:45	7.5	8.0	X								
SOIL	GEOPROBE	P15-B3-A	10/27/07	9:00	0.0	0.5	X								
SOIL	GEOPROBE	P15-B3-B	10/27/07	9:00	1.5	2.0	NA								
SOIL	GEOPROBE	P15-B3-C	10/27/07	9:10	7.5	8.0	X								
SOIL	GEOPROBE	P15-B4-A	10/27/07	9:20	0.0	0.5	X								
SOIL	GEOPROBE	P15-B4-B	10/27/07	9:20	1.5	2.0	NA								
SOIL	GEOPROBE	P15-B4-C	10/27/07	9:35	7.5	8.0	X								

Table 3.3-2
Parcel 15 Sample and Analytical Summary

Media	Type	Field Sample #	Sample Date	Sample Time	Begin Depth	End Depth	TPHC	VO+15	BN+15	PCBs	TAL Metals	Cyanide	Mercury	Ammonia/ Nitrate/ Nitrite	COMMENTS/VARIANCES
SOIL	GEOPROBE	P15-C2-A	10/27/07	9:55	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-C2-B	10/27/07	9:55	1.5	2.0	NA								
SOIL	GEOPROBE	P15-C2-C	10/27/07	10:05	6.0	6.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-C3-A	10/27/07	10:25	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-C3-B	10/27/07	10:25	1.5	2.0	NA								
SOIL	GEOPROBE	P15-C3-C	10/27/07	10:35	6.0	6.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-C4-A	10/27/07	11:05	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-C4-B	10/27/07	11:05	1.5	2.0	NA								
SOIL	GEOPROBE	P15-C4-C	10/27/07	11:15	6.0	6.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
BLANK	FIELD	FIELD BLANK	10/27/07	11:45	--	--	X								
SOIL	GEOPROBE	P15-C1-A	10/29/07	8:45	0.0	0.5	X								
SOIL	GEOPROBE	P15-C1-B	10/29/07	8:45	1.5	2	NA								
SOIL	GEOPROBE	P15-C1-C	10/29/07	8:55	6.5	7	X								
BLANK	TRIP	TRIP BLANK	10/29/07	-	--	--		X							
SOIL	GEOPROBE	P15-D1-A	10/29/07	9:20	0.0	0.5	X								
SOIL	GEOPROBE	P15-D1-B	10/29/07	9:20	1.5	2.0	NA								
SOIL	GEOPROBE	P15-D1-C	10/29/07	9:30	7.0	7.5	X								
SOIL	GEOPROBE	P15-D2-A	10/29/07	9:45	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-D2-B	10/29/07	9:45	1.5	2.0	NA								

Table 3.3-2
Parcel 15 Sample and Analytical Summary

Media	Type	Field Sample #	Sample Date	Sample Time	Begin Depth	End Depth	TPHC	VO+15	BN+15	PCBs	TAL Metals	Cyanide	Mercury	Ammonia/ Nitrate/ Nitrite	COMMENTS/VARIANCES
SOIL	GEOPROBE	P15-D2-C	10/29/07	10:00	8.0	8.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-D3-A	10/29/07	10:40	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-D3-B	10/29/07	10:40	1.5	2.0	NA								
SOIL	GEOPROBE	P15-D3-C	10/29/07	11:00	8.0	8.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-E1-A	10/29/07	11:25	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-E1-B	10/29/07	11:25	1.5	2.0	NA								
SOIL	GEOPROBE	P15-E1-C	10/29/07	11:35	5.5	6.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-E2-A	10/29/07	13:20	0.5	1.0	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-E2-B	10/29/07	13:20	1.5	2.0	NA								
SOIL	GEOPROBE	P15-E2-C	10/29/07	13:35	6.0	6.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
SOIL	GEOPROBE	P15-E2-C DUPLICATE	10/29/07	13:35	6.0	6.5	X								Sample depth in field documentation was recorded from top of soil. Reported bgs depths adjusted to account for surface asphalt and sub-base.
BLANK	FIELD	FIELD BLANK	10/29/07	13:45	NA	NA	X								Field blank was not run for all sediment parameters.
SD	HAND AUGER	15SD-1	10/29/07	15:40	0.0	0.5		X	X	X	X				
SD	HAND AUGER	15SD-1D	10/29/07	16:00	1.5	2.0		X	X	X	X				
SD	HAND AUGER	15SD-2	10/29/07	15:10	0.0	0.5		X	X	X	X				
SD	HAND AUGER	15SD-2D	10/29/07	15:25	1.5	2.0		X	X	X	X				
SD	HAND AUGER	15SD-2D DUPLICATE	10/29/07	15:25	1.5	2.0		X	X	X	X				
SD	HAND AUGER	15SD-3	10/29/07	14:45	0.0	0.5		X	X	X	X				

Table 3.3-2
Parcel 15 Sample and Analytical Summary

Media	Type	Field Sample #	Sample Date	Sample Time	Begin Depth	End Depth	TPHC	VO+15	BN+15	PCBs	TAL Metals	Cyanide	Mercury	Ammonia/ Nitrate/ Nitrite	COMMENTS/VARIANCES
SD	HAND AUGER	15SD-3D	10/29/07	15:00	1.5	2.0		X	X	X	X				
BLANK	TRIP	TRIP BLANK-AQ	10/31/07	12:00	--	--		X							
BLANK	FIELD	FIELD BLANK-AQ	10/31/07	12:30	--	--		X	X		X				
GW	GEOPROBE	15GW-1	10/31/07	13:00	7.0	12		X	X		X				
GW	GEOPROBE	15GW-2	10/31/07	13:30	7.0	12		X	X		X				
GW	GEOPROBE	15GW-3	10/31/07	14:00	7.0	12		X	X		X				
GW	GEOPROBE	15GW-3 DUPLICATE	10/31/07	14:00	7.0	12		X	X		X				
GW	GEOPROBE	15GW-4	10/31/07	14:30	7.0	12		X	X		X				
GW	GEOPROBE	15GW-5	10/31/07	15:00	7.0	12		X	X		X				
GW	GEOPROBE	15GW-6	10/31/07	15:30	7.0	12		X	X		X				
GW	MONITORING WELL	UST-2337-65	--	--											Monitoring well could not be located. No sample.
IA	CANISTER	15IA-1	12/09/07	8:45	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-2	12/09/07	8:40	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-3	12/09/07	9:00	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-4	12/09/07	9:10	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-5	12/09/07	9:45	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-6	12/09/07	9:20	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-7	12/09/07	9:21	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-8	12/09/07	9:22	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-9	12/09/07	9:40	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-10	12/09/07	9:50	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-11	12/09/07	10:05	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-12	12/09/07	10:15	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-12 DUPLICATE	12/09/07	10:15	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-13	12/09/07	10:20	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-14	12/09/07	10:35	--	--		X							Indoor air samples collected in lieu of soil gas.
IA	CANISTER	15IA-15	12/09/07	10:40	--	--		X							Indoor air samples collected in lieu of soil gas.
BLANK	AMBIENT	15IA-AMBIENT	12/09/07	10:55	--	--		X							Indoor air samples collected in lieu of soil gas.
SG	CANISTER	15SG-1	12/11/07	11:13	3.0	3.0		X							
SG	CANISTER	15SG-2	12/11/07	11:46	6.0	6.0		X							

Table 3.3-2
Parcel 15 Sample and Analytical Summary

Media	Type	Field Sample #	Sample Date	Sample Time	Begin Depth	End Depth	TPHC	VO+15	B\N+15	PCBs	TAL Metals	Cyanide	Mercury	Ammonia/ Nitrate/ Nitrite	COMMENTS/VARIANCES
SG	CANISTER	15SG-3	12/11/07	12:03	6.0	6.0		X							
SG	CANISTER	15SG-4	12/11/07	12:30	6.0	6.0		X							
SG	CANISTER	15SG-5	12/11/07	12:50	6.0	6.0		X							
SG	CANISTER	15SG-6	12/11/07	13:51	6.0	6.0		X							
SG	CANISTER	15SG-7	12/11/07	14:00	6.0	6.0		X							
SG	CANISTER	15SG-8	12/11/07	14:30	6.0	6.0		X							
SG	CANISTER	15SG-9	12/11/07	14:45	6.0	6.0		X							
SG	CANISTER	15SG-10	12/11/07	15:05	6.0	6.0		X							
SG	CANISTER	15SG-11	12/11/07	15:25	6.0	6.0		X							
SG	CANISTER	15SG-12	12/11/07	15:55	6.0	6.0		X							
SG	CANISTER	15SG-13	12/11/07	16:25	6.0	6.0		X							
SG	CANISTER	15SG-14	12/11/07	16:50	6.0	6.0		X							
SG	CANISTER	15SG-15	12/11/07	17:15	6.0	6.0		X							

NA = Not Analyzed. Sample was collected for VOC analysis in the event TPHC results in the 0.0-0.5 ft bgs interval exceeded 1,000 mg/kg. TPHC results were less than 1,000 mg/kg in the 0.0-0.5 ft bgs interval, therefore no VOC analysis was required.
X = Sample analyzed for the indicated analytical parameter suite

Table 3.3-3
Parcel 15 - Ground Penetrating Radar and Metal Detection Follow-up Survey Results

Anomaly	Anomaly Type: Differential	Anomaly Re-Acquired by Small Area Metal Detection	Metal Detection (MD) Anomaly Size (feet)	GPR Anomaly Size (feet)	Description	Easting	Northing
P15_1	Differential	N/A	N/A	N/A	Surface metal.	606619	532908
P15_2	Differential	N/A	N/A	N/A	Surface metal.	606621	533550
P15_3	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606633	533264
P15_4	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606654	532758
P15_5	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606654	533309
P15_6	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606663	532782
P15_7	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606690	533315
P15_8	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606708	533285
P15_9	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606732	532818
P15_10	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606747	533315
P15_11	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606772	533462
P15_12	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606787	533318
P15_13	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606796	533480
P15_14	Differential	N/A	N/A	N/A	Surface metal.	606805	533432
P15_15	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606832	533327
P15_16	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606835	532599

Anomaly	Anomaly Type: Differential	Anomaly Re-Acquired by Small Area Metal Detection	Metal Detection (MD) Anomaly Size (feet)	GPR Anomaly Size (feet)	Description	Easting	Northing
P15_17	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606910	532572
P15_18	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606937	532647
P15_19	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606937	533577
P15_20	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606949	532581
P15_21	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	606988	533504
P15_22	Differential	Yes	10 X 15	see notes	Moderate-amplitude scattered near-surface anomalies, possible debris.	607060	532686
P15_23	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607060	533486
P15_24	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607075	533528
P15_25	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607130	532659
P15_26	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607199	533643
P15_27	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607226	533384
P15_28	Differential	N/A	N/A	N/A	Surface metal.	607238	533414
P15_29	Differential	N/A	N/A	N/A	Surface metal.	607274	533516
P15_30	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607301	533381
P15_31	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607304	533547
P15_32	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607328	533571
P15_33	Differential	N/A	N/A	N/A	Surface metal.	607343	533423

Anomaly	Anomaly Type: Differential	Anomaly Re-Acquired by Small Area Metal Detection	Metal Detection (MD) Anomaly Size (feet)	GPR Anomaly Size (feet)	Description	Easting	Northing
P15_34	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607650	533345
P15_35	Differential	N/A	N/A	N/A	Surface metal.	607686	533396
P15_36	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607752	533297
P15_37	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607767	533225
P15_38	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607777	533261
P15_39	Differential	N/A	N/A	N/A	Surface metal.	607786	533408
P15_40	Differential	N/A	N/A	N/A	Surface metal.	607795	533354
P15_41	Differential	Yes	< 2 x 2	< 2 x 2	Moderate-amplitude point target/anomaly, possible debris.	607822	533450

Table 3.3-4
Fort Monmouth Phase II Site Investigation, Parcel 15
Summary of Analytical Parameters Detected in Sediment (mg/kg)

			Analytical Results						
		Sample ID:	15SD-1	15SD-1D	15SD-2	15SD-2D	15SD-2D DUP	15SD-3	15SD-3D
		Lab ID:	7042622	7042623	7042624	7042625	7042628	7042626	7042627
		Date Sampled:	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007	10/29/2007
		Depth (ft. bgs):	0.0-0.5	1.5-2.0	0.0-0.5	1.5-2.0	1.5-2.0	0.0-0.5	1.5-2.0
Chemical	LEL[1]	SEL[2]	Result	Result	Result	Result	Result	Result	Result
Semi-Volatiles									
2-Methylphenol	NLE	NLE	1.200 U	1.100 U	1.200 U	1.000 U	1.200 U	**0.460 J**	1.000 U
Acenaphthene	0.016	NLE	1.200 U	**0.130 J**	1.200 U	1.000 U	1.200 U	1.200 U	1.000 U
Anthracene	0.220	370	1.200 U	1.100 U	1.200 U	1.000 U	1.200 U	**0.052 J**	1.000 U
Benzo[a]anthracene	0.320	1480	1.200 U	1.100 U	1.200 U	1.000 U	1.200 U	**0.200 J**	1.000 U
Benzoic acid	NLE	NLE	1.200 U	1.100 U	1.200 U	1.000 U	1.200 U	**0.790 J**	1.000 U
bis(2-Ethylhexyl)phthalate	NLE	NLE	1.200 U	**0.260 J**	1.200 U	**0.270 J**	**0.460 J**	**1.300**	1.000 U
Chrysene	0.340	460	1.200 U	1.100 U	1.200 U	1.000 U	1.200 U	**0.320 J**	1.000 U
Di-n-butylphthalate	NLE	NLE	**0.810 JB**	**0.410 JB**	**0.280 JB**	**0.790 JB**	**0.920 JB**	**0.680 JB**	**0.750 JB**
Fluoranthene	0.750	1020	1.200 U	**0.098 J**	**0.170 J**	**0.049 J**	1.200 U	**0.280 J**	1.000 U
Fluorene	0.190	160	1.200 U	**0.210 J**	1.200 U	1.000 U	1.200 U	1.200 U	1.000 U
Phenanthrene	0.560	950	**0.061 J**	**0.078 J**	**0.170 J**	1.000 U	1.200 U	**0.220 J**	1.000 U
Pyrene	0.490	850	1.200 U	**0.220 J**	**0.340 J**	1.000 U	1.200 U	**0.470 J**	1.000 U
Metals									
Aluminum	NLE	NLE	**2540 B**	**3580 B**	**3280 B**	**3740 B**	**4740 B**	**4140 B**	**11600 B**
Arsenic	6	33	**1.65**	**1.59**	**2.29**	**2.31**	**2.93**	**3.03**	**5.73**
Barium	NLE	NLE	**13.7 B**	**23.1 B**	**18.3 B**	**19.5 B**	**21.4 B**	**21.2 B**	**81.3 B**
Beryllium	NLE	NLE	**0.252**	**0.366**	**0.361**	**0.422**	**0.417**	**0.472**	**0.780**
Cadmium	0.6	10	0.047 U	0.046 U	**0.228**	**0.149**	**0.209**	**0.243**	**0.0505**
Calcium	NLE	NLE	**622 B**	**989 B**	**750 B**	**783 B**	**1230 B**	**1010 B**	**1760 B**
Chromium (Total)	26	110	**29.4**	**35.9**	**31.1**	**54.1**	**54.4**	**37.0**	**73.4**
Cobalt	NLE	NLE	**0.733**	**0.531**	**1.60**	**1.52**	**2.41**	**2.67**	**0.604**
Copper	16	110	**8.23 B**	**8.43 B**	**10.7 B**	**13.6 B**	**19.5 B**	**13.0 B**	**9.10 B**
Iron	NLE	NLE	**7850**	**10500**	**9210**	**10800**	**11900**	**11400**	**17000**
Lead	31	250	**8.94**	**13.8**	**11.8**	**19.7**	**23.4**	**14.6**	**7.99**
Magnesium	NLE	NLE	**972**	**1310**	**1090**	**1250**	**1460**	**1650**	**2820**
Manganese	NLE	NLE	**30.7 B**	**28.0 B**	**20.4 B**	**26.1 B**	**77.9 B**	**16.9 B**	**41.0 B**
Nickel (Soluble Salts)	16	75	**3.50**	**3.43**	**4.73**	**5.12**	**6.42**	**7.47**	**9.55**
Potassium	NLE	NLE	**1870 B**	**2530 B**	**2260 B**	**2490 B**	**2720 B**	**3180 B**	**4820 B**
Sodium	NLE	NLE	**137 B**	42.019 U	**150 B**	43.161 U	41.194 U	45.633 U	40.141 U
Vanadium	NLE	NLE	**14.1**	**18.6**	**16.8**	**18.6**	**21.9**	**21.4**	**46.9**
Zinc	120	820	**49.9**	**52.3**	**56.6**	**64.1**	**96.2**	**86.0**	**44.1**

[1] NJDEP Freshwater Sediment Screening Values - Lowest Effect Levels, 1998.

[2] NJDEP Freshwater Sediment Screening Guidelines - Severe Effects Levels, 1998.
For non-polar organics (PAHs, organochlorine pesticides, PCBs), the SEL is caluculated from a site-specific TOC level. To calculate a site-specific SEL, TOC is multiplied by the the table SEL. However, no TOC analysis was performed on the FTMM sediment samples. Generally, TOC values range from 1% (10,000 mg/kg) to 10% (100,000 mg/kg) (USEPA, 1998). Since the table SEL is based on 100% TOC, the calculated site-specific SEL would be lower.

DUP = Duplicate Sample.

ft. bgs = Feet below ground surface.

B = The compound was found in the associated method blank as well as in the sample.

D = Sample was diluted.

E = The compound's concentration exceeds the calibration range of the instrument for that specific analysis.

J = Mass spec and retention time data indicate the presence of a compound however the result is less than the MDL but greater than zero.

U = The compound was analyzed for but not detected.

NT = Not tested.

NLE = No limit established.

mg/kg = milligram per kilogram.

Bold = Analyte detected.

Shaded = Concentration exceeds LEL.

Table 3.3-5
Fort Monmouth ECP Site Investigation, Parcel 15
Summary of Analytical Parameters Detected in Soil Gas (µg/m^3)

		Analytical Results														
Sample ID:		15SG-1	15SG-2	15SG-3	15SG-4	15SG-5	15SG-6	15SG-7	15SG-8	15SG-9	15SG-10	15SG-11	15SG-12	15SG-13	15SG-14	15SG-15
Lab ID:		J78947-1	J78947-2	J78947-3	J78947-4	J78947-5	J78947-6	J78947-7	J78947-8	J78947-9	J78947-10	J78947-11	J78947-12	J78947-13	J78947-14	J78947-15
Date Sampled:		12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07	12/11/07
Depth (ft. bgs):		3'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'	6'
Chemical	SG Non-residential[2]	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatiles																
Acetone	230,000	**48.0**	**23**	**14**	**24**	**39.0**	**21**	**27.3**	**15**	**13**	<1.3	<8.1	<1.3	<16	<7.6	<1.3
Benzene	26	**5.1**	<0.7	<0.7	**4.2 J**	<0.7	**2.7 J**	**5.1**	<0.7	<0.7	**10**	**66.1**	**8.0**	**39.0 J**	**90.7**	**3.5 J**
Carbon disulfide	51,000	**4.7 J**	**2.9 J**	<0.87	**14**	<0.87	**8.4**	**32.1**	<0.87	**9.3**	<0.87	<5.6	**14**	<11	<5	<0.87
Chloroform	24	<1.7	**10**	**4.9 J**	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<10	<1.7	<21	<9.3	<1.7
Cyclohexane	430,000	**4.8 J**	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	**29**	**291**	**16**	**482**	**328**	<1.2
Dichlorodifluoromethane	13,000	<2.3	<2.3	<2.3	<2.3	<2.3	**4.8 J**	<2.3	<2.3	<2.3	**14**	<14	<2.3	<29	<13	<2.3
cis-1,2-Dichloroethylene	2,600	<1.7	**30**	**23**	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	**39**	<10	<1.7	<21	<9.5	<1.7
trans-1,2-Dichloroethylene	5,100	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<8.7	<1.4	<18	<8.3	<1.4
1,2-Dichloroethylene (total)	2,300	<1.7 (a)	**30 (a)**	**23 (a)**	<1.7 (a)	<1.7 (a)	<1.7 (a)	<1.7 (a)	<1.7 (a)	<1.7 (a)	**39 (a)**	<10 (a)	<1.7 (a)	<21 (a)	<9.5 (a)	<1.7 (a)
Dichloromethane	430	**8.0**	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<8.7	<1.4	<18	<8	<1.4
Ethanol	NLE	**19.0**	**7.3 J**	**15**	**15**	<2.3	**19.4**	**21.9**	**11**	**13**	<2.3	<14	<2.3	<26	**47.3**	**7.9**
Ethylbenzene	74,000	**6.9**	**5.2 J**	<0.65	**11**	**4.2 J**	**8.7**	**12**	**5.2 J**	**4.3 J**	**6.9**	<4	**13**	<7.8	<3.6	<0.65
4-Ethyltoluene	NLE	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<4.1	**6.4 J**	<8.4	<3.8	<0.69
n-Heptane	NLE	**34**	**17**	**11**	**13**	**9.0**	**11**	**31**	**5.3 J**	**4.5 J**	**35**	**582**	**26**	**717**	**126**	<0.98
n-Hexane	51,000	**20**	**6.3**	<0.99	**14**	<0.99	<0.99	**21**	<0.99	<0.99	**131**	**3520**	**117**	**3770**	**1170**	**11**
Isopropyl Alcohol	NLE	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<7.1	**8.1**	<14	<6.6	<1.2
4-Methyl-2-pentanone (MIBK)	220,000	**4.5 J**	<0.82	<0.82	<0.82	**8.2**	<0.82	<0.82	<0.82	<0.82	<0.82	<4.9	**15**	<10	<4.5	<0.82
Methyl ethyl ketone	360,000	**7.4**	<0.91	<0.91	<0.91	**14**	<0.91	<0.91	<0.91	<0.91	<0.91	<5.6	**25**	<11	<5	<0.91
Methyl tertiary butyl ether (MTBE)	180	<1.3	<1.3	<1.3	**4.0 J**	**6.5**	<1.3	<1.3	<1.3	<1.3	<1.3	<8.3	<1.3	<16	<7.6	<1.3
Propylene	NLE	**92.8**	<1	<1	<1	**4.1 J**	<1	**62.9**	**7.9**	<1	<1	<6	<1	<12	<5.5	**16**
Tertiary Butyl Alcohol	4,600	<1.1	<1.1	<1.1	**3.9 J**	<1.1	**3.6 J**	<1.1	<1.1	<1.1	<1.1	<6.7	<1.1	<13	<6.1	<1.1
Tetrachloroethylene	36	**149**	**83.4**	**67.8**	**87.5**	**65**	**69.2**	**92.9**	**54**	**48**	**58**	<8.1	**47**	<16	<7.5	<1.3
Toluene	360,000	**96.1**	**41.1**	**27**	**80.6**	**27**	**28**	**48.6**	**17**	**16**	**27**	<3.1	**34**	<6	<2.8	**4.5 J**
Trichloroethylene	27	<1.3	**506**	**332**	**55.9**	**19**	**7.5 J**	**11**	**5.4 J**	<1.3	**10**	<8.1	<1.3	<16	<7.5	<1.3
Trichlorofluoromethane	51,000	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<16	**298**	**629**	**657**	<2.6
1,2,4-Trimethylbenzene	NLE	<0.84	**15**	<0.84	**4.3 J**	**10**	**4.6 J**	**5.9 J**	<0.84	<0.84	**5.4 J**	<4.9	**24**	<10	<4.6	<0.84
1,3,5-Trimethylbenzene	NLE	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<0.69	<4.2	**6.4 J**	<8.4	<3.9	<0.69
2,2,4-Trimethylpentane	NLE	**7.5**	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	**17**	**9150**	**747**	**31900**	**15600**	**72.9**
Vinyl chloride	48	<0.84	<0.84	<0.84	<0.84	<0.84	<0.84	<0.84	<0.84	<0.84	**73.9**	<5.1	<0.84	<10	<4.9	<0.84
Xylenes (m&p)	NLE	**23**	**16**	**9.1**	**29**	**15**	**34**	**47.3**	**22**	**17**	**22**	**32 J**	**40**	<15	**27 J**	**6.1 J**
o-Xylene	NLE	**6.9**	**6.5 J**	**3.3 J**	**10**	**4.8 J**	**18**	**27**	**12**	**8.3**	**11**	<4.8	**13**	<9.1	<4.3	<0.74
Xylenes (total)	7,700	**30**	**22**	**12**	**40**	**20**	**51.7**	**74.7**	**34**	**25**	**33**	**32 J**	**52.6**	<9.1	**27 J**	**6.1 J**

[1] NJDEP Generic Vapor Intrusion Screening Levels, Soil Gas Screening Levels, Residential, March 2007.

[2] NJDEP Generic Vapor Intrusion Screening Levels, Soil Gas Screening Levels, Nonresidential, March 2007. Results were compared to these levels.

(a) = Sum of cis-1,2-Dichloroethylene and trans-1,2-Dichloroethylene.

J = Indicates an estimated value.

DUP = Duplicate Sample

NLE = No Limit Established

Bold = Analyte detected.

Shaded = Concentration exceeds SG Nonresidential.

Table 3.3-6
Fort Monmouth ECP Site Investigation, Parcel 15
Summary of Analytical Parameters Detected Indoor Air (µg/m^3)

Chemical	RAL[3]	IA Non-residential[2]	Analytical Results					
Sample ID:			15IA-1	15IA-2	15IA-3	15IA-4	15IA-5	15IA-6
Lab ID:			J78674-21	J78674-22	J78674-23	J78674-24	J78674-25	J78674-26
Date Sampled:			12/09/07	12/09/07	12/09/07	12/09/07	12/09/07	12/09/07
			Result	Result	Result	Result	Result	Result
Volatiles								
Acetone	6,600	4,600	**10**	**7.1**	**5.7**	**5.0**	**6.2**	**3.6**
Benzene	14	2	**1.1**	**1.3**	**1.2**	**1.1**	**1.1**	**0.96**
Carbon tetrachloride	10	3	<0.31	<0.31	**0.82 J**	<0.31	<0.31	<0.31
Chloromethane	NLE	130	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.1**
Dichlorodifluoromethane	NLE	260	**2.7**	**2.7**	**2.8**	**2.7**	**2.8**	**2.6**
Dichloromethane	400	9	**0.66 J**	**0.69**	**0.63 J**	**0.56 J**	**0.66 J**	**1.0**
Ethanol	NLE	NLE	**10**	**14**	**5.8**	**4.1**	**17**	**3.8**
Ethyl Acetate	NLE	NLE	<0.3	**2.5**	**2.2**	<0.3	<0.3	<0.3
Ethylbenzene	2,200	1,500	<0.083	<0.083	**0.43 J**	<0.083	<0.083	<0.083
n-Heptane	NLE	NLE	<0.13	**0.61 J**	**0.49 J**	<0.13	**0.45 J**	<0.13
Isopropyl Alcohol	NLE	NLE	**51.6**	**14**	**14**	**9.6**	**7.9**	**3.7**
Methyl ethyl ketone	NLE	7,200	**0.80**	**0.83**	**0.80**	**0.65**	**0.83**	**0.53 J**
Propylene	NLE	NLE	**2.4**	<0.12	<0.12	<0.12	**2.6**	**2.1**
Tetrahydrofuran	NLE	NLE	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	10,000	7,200	**1.7**	**5.7**	**2.1**	**1.5**	**1.8**	**1.4**
1,1,2-Trichloro-1,2,2-trifluoroethane	NLE	44,000	**0.75 J**	<0.25	<0.25	<0.25	<0.25	<0.25
Trichlorofluoromethane	NLE	1,000	**2.4**	**2.4**	**2.2**	**1.9**	**2.4**	**1.3**
1,2,4-Trimethylbenzene	NLE	NLE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,4-Trimethylpentane	NLE	NLE	<0.093	<0.093	**0.56 J**	<0.093	<0.093	<0.093
o-Xylene	NLE	NLE	<0.096	<0.096	**0.52 J**	<0.096	<0.096	<0.096
Xylenes (m&p)	NLE	NLE	**0.83 J**	**1.1**	**1.9**	**0.91**	**1.0**	**0.78 J**
Xylenes (total)	220	150	**0.83 J**	**1.1**	**2.4**	**0.91**	**1.0**	**0.78 J**

[1] NJDEP Generic Vapor Intrusion Screening Levels, Indoor Air Screening Levels, Residential, March 2007.

[2] NJDEP Generic Vapor Intrusion Screening Levels, Indoor Air Screening Levels, Nonresidential, March 2007. Results were compared to these levels.

[3] NJDEP Rapid Action Levels for Indoor Air, March 2007.

J = Indicates an estimated value.

DUP = Duplicate Sample

NLE = No Limit Established

Bold = Analyte detected

Shaded = Concentration exceeds of IA Nonresidential.

Table 3.3-6
Fort Monmouth ECP Site Investigation, Parcel 15
Summary of Analytical Parameters Detected Indoor Air (µg/m^3)

Chemical	RAL[3]	IA Non-residential[2]	Analytical Results					
		Sample ID:	15IA-7	15IA-8	15IA-9	15IA-10	15IA-11	15IA-12
		Lab ID:	J78674-27	J78674-28	J78674-29	J78674-30	J78674-11	J78674-12
		Date Sampled:	12/09/07	12/09/07	12/09/07	12/09/07	12/09/07	12/09/07
			Result	Result	Result	Result	Result	Result
Volatiles								
Acetone	6,600	4,600	**4.5**	**3.6**	**3.6**	<0.17	**6.7**	**6.2**
Benzene	14	2	**0.96**	**0.99**	**1.0**	**0.99**	**1.1**	**1.1**
Carbon tetrachloride	10	3	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
Chloromethane	NLE	130	**1.2**	**1.1**	**1.1**	**1.2**	**1.1**	**1.1**
Dichlorodifluoromethane	NLE	260	**2.7**	**2.6**	**2.7**	**2.7**	**2.4**	**2.5**
Dichloromethane	400	9	**0.69**	**0.63 J**	**0.83**	**0.76**	**0.56 J**	**0.63 J**
Ethanol	NLE	NLE	**4.1**	**4.1**	**3.8**	**4.5**	**12**	**18**
Ethyl Acetate	NLE	NLE	<0.3	**1.0**	**1.0**	<0.3	**2.4**	**2.3**
Ethylbenzene	2,200	1,500	<0.083	<0.083	**0.48 J**	<0.083	<0.083	**0.43 J**
n-Heptane	NLE	NLE	<0.13	<0.13	<0.13	<0.13	**0.53 J**	<0.13
Isopropyl Alcohol	NLE	NLE	**6.9**	**0.64**	**0.49**	**5.9**	**1.5**	**2.0**
Methyl ethyl ketone	NLE	7,200	**0.59**	**0.47 J**	**0.47 J**	**0.68**	**0.68**	**1.2**
Propylene	NLE	NLE	**2.1**	<0.12	**2.2**	**2.2**	**2.7**	**2.1**
Tetrahydrofuran	NLE	NLE	<0.2	<0.2	<0.2	<0.2	<0.2	**1.2**
Toluene	10,000	7,200	**1.3**	**1.4**	**1.4**	**1.5**	**1.9**	**2.0**
1,1,2-Trichloro-1,2,2-trifluoroethane	NLE	44,000	<0.25	<0.25	<0.25	<0.25	<0.25	**1.5 J**
Trichlorofluoromethane	NLE	1,000	**1.4**	**1.3**	**1.4**	**1.5**	**1.8**	**2.1**
1,2,4-Trimethylbenzene	NLE	NLE	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,2,4-Trimethylpentane	NLE	NLE	<0.093	<0.093	<0.093	<0.093	<0.093	<0.093
o-Xylene	NLE	NLE	<0.096	<0.096	**0.48 J**	<0.096	**0.41 J**	**0.40 J**
Xylenes (m&p)	NLE	NLE	**0.65 J**	**0.83 J**	**1.5**	**0.83 J**	**1.2**	**1.2**
Xylenes (total)	220	150	**0.65 J**	**0.83 J**	**2.0**	**0.83 J**	**1.6**	**1.7**

[1] NJDEP Generic Vapor Intrusion Screening Levels, Indoor Air Screening Levels, Residential, March 2007.

[2] NJDEP Generic Vapor Intrusion Screening Levels, Indoor Air Screening Levels, Nonresidential, March 2007. Results were compared to these levels.

[3] NJDEP Rapid Action Levels for Indoor Air, March 2007.

J = Indicates an estimated value.

DUP = Duplicate Sample

NLE = No Limit Established

Bold = Analyte detected

Shaded = Concentration exceeds of IA Nonresidential.

Table 3.3-6
Fort Monmouth ECP Site Investigation, Parcel 15
Summary of Analytical Parameters Detected Indoor Air (µg/m^3)

			Analytical Results				
		Sample ID:	15IA-12 DUP	15IA-13	15IA-14	15IA-15	15IA-AMBIENT
		Lab ID:	J78674-13	J78674-14	J78674-15	J78674-16	J78674-17
		Date Sampled:	12/09/07	12/09/07	12/09/07	12/09/07	12/09/07
Chemical	RAL[3]	IA Non-residential[2]	Result	Result	Result	Result	Result
Volatiles							
Acetone	6,600	4,600	**6.7**	**5.7**	**5.7**	**5.9**	**3.8**
Benzene	14	2	**0.99**	**0.99**	**0.99**	**1.0**	**1.0**
Carbon tetrachloride	10	3	<0.31	<0.31	<0.31	<0.31	<0.31
Chloromethane	NLE	130	**1.2**	**1.2**	**1.2**	**1.2**	**1.1**
Dichlorodifluoromethane	NLE	260	**2.8**	**3.2**	**2.8**	**2.7**	**2.7**
Dichloromethane	400	9	**0.59 J**	**0.63 J**	**0.52 J**	**0.45 J**	**0.52 J**
Ethanol	NLE	NLE	**20.2**	**15**	**9.2**	**19.8**	**4.0**
Ethyl Acetate	NLE	NLE	**2.6**	**2.5**	**2.6**	**2.5**	<0.3
Ethylbenzene	2,200	1,500	**0.74 J**	**0.74 J**	**0.56 J**	<0.083	<0.083
n-Heptane	NLE	NLE	<0.13	<0.13	<0.13	<0.13	<0.13
Isopropyl Alcohol	NLE	NLE	**2.3**	**2.7**	**4.7**	**1.8**	**4.4**
Methyl ethyl ketone	NLE	7,200	**1.2**	**0.77**	**0.65**	<0.11	**0.50 J**
Propylene	NLE	NLE	<0.12	**2.2**	**2.2**	**2.1**	**2.2**
Tetrahydrofuran	NLE	NLE	**1.3**	<0.2	<0.2	<0.2	<0.2
Toluene	10,000	7,200	**2.6**	**3.2**	**1.7**	**1.4**	**1.5**
1,1,2-Trichloro-1,2,2-trifluoroethane	NLE	44,000	**1.3 J**	**0.92 J**	<0.25	<0.25	<0.25
Trichlorofluoromethane	NLE	1,000	**2.3**	**1.8**	**1.9**	**1.5**	**1.4**
1,2,4-Trimethylbenzene	NLE	NLE	**2.6**	<0.1	<0.1	<0.1	<0.1
2,2,4-Trimethylpentane	NLE	NLE	<0.093	<0.093	<0.093	<0.093	<0.093
o-Xylene	NLE	NLE	**0.91**	**0.48 J**	**0.48 J**	<0.096	<0.096
Xylenes (m&p)	NLE	NLE	**2.5**	**1.8**	**1.5**	**0.69 J**	**0.78 J**
Xylenes (total)	220	150	**3.4**	**2.3**	**2.0**	**0.69 J**	**0.78 J**

[1] NJDEP Generic Vapor Intrusion Screening Levels, Indoor Air Screening Levels, Residential, March 2007.

[2] NJDEP Generic Vapor Intrusion Screening Levels, Indoor Air Screening Levels, Nonresidential, March 2007. Results were compared to these levels.

[3] NJDEP Rapid Action Levels for Indoor Air, March 2007.

J = Indicates an estimated value.

DUP = Duplicate Sample

NLE = No Limit Established

Bold = Analyte detected

Shaded = Concentration exceeds of IA Nonresidential.

Table 3.3-7
Fort Monmouth Phase II Site Investigation, Parcel 15
Summary of TPHC Detected in Soil (mg/kg)

Sample ID	Lab ID	Sample Date	Depth (ft. bgs)	Result	MDL	NJDEP NRDCSCC[2] (mg/kg)	NJDEP IGWSCC[3] (mg/kg)
P15-B1-A	7042403	10/27/07	0.5-1.0	91	69	10000	10000
P15-B1-C	7042405	10/27/07	9.5-10.0	115	75	10000	10000
P15-B3-A	7042409	10/27/07	0.0-0.5	277	72	10000	10000
P15-C3-C	7042420	10/27/07	6.0-6.5	387	70	10000	10000
P15-H1-A	7042303	10/26/07	0.5-1.0	130	68	10000	10000
P15-I1-A	7042215	10/25/07	0.0-0.5	350	76	10000	10000
P15-J1-A	7042118	10/24/07	0.0-0.5	609	73	10000	10000
P15-J4-A	7042109	10/24/07	0.5-1.0	177	74	10000	10000
P15-K4-A	7042206	10/25/07	0.5-1.0	120	70	10000	10000

[1] NJDEP Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) per NJAC 7:26D, 1999.

[2] NJDEP Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) per NJAC 7:26D, 1999.

[3] NJDEP Impact to Groundwater Soil Cleanup Criteria (IGWSCC) per NJAC 7:26D, 1999.

DUP = Duplicate sample.

ft. bgs = Feet below ground surface.

MDL = Method detection limit

mg/kg = milligram per kilogram.

Table 3.3-8
Fort Monmouth Phase II Site Investigation, Parcel 15
Summary of Analytical Parameters Detected in Groundwater (µg/L)

		Analytical Results						
	Sample ID:	15GW-1	15GW-2	15GW-3	15GW-3DUP	15GW-4	15GW-5	15GW-6
	Lab ID:	7043104	7043105	7043106	7043103	7043107	7043108	7043109
	Date Sampled:	10/31/2007	10/31/2007	10/31/2007	10/31/2007	10/31/2007	10/31/2007	10/31/2007
	Screened Interval (ft. bgs):	7-12'	7-12'	7-12'	7-12'	7-12'	7-12'	7-12'
Chemical	Quality Criteria[1]	Result	Result	Result	Result	Result	Result	Result
Volatiles								
Toluene	600	**0.65**	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Semi-Volatiles								
bis(2-Ethylhexyl)phthalate	3	1.28 U	1.28 U	**3.74**	1.28 U	**4.04**	**1.19 J**	1.28 U
Metals								
Aluminum	200	**5240 B**	**1050 B**	**161 B**	**272 B**	**769 B**	**1280 B**	**800 B**
Arsenic	3	**4.41**	2.70 U	2.70 U	2.70 U	**7.47**	2.70 U	2.70 U
Barium	6000	**73.2**	**375**	**354**	**354**	**779**	**121**	**72.2**
Beryllium	1	**0.934**	**0.468**	0.100 U	0.100 U	0.100 U	**0.355**	**0.376**
Cadmium	4	**0.285**	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Calcium	NLE	**4330 B**	**57200 B**	**50000 B**	**49300 B**	**136000 B**	**19900 B**	**3880 B**
Chromium (Total)	70	**61.5**	**5.38**	**0.516**	**1.81**	**3.31**	**8.19**	**6.81**
Cobalt	100*	**13.2**	0.200 U	0.200 U	0.200 U	**0.387**	**0.707**	**0.457**
Copper	1300	**4.10**	0.500 U	0.500 U	0.500 U	**5.90**	**9.25**	**5.18**
Iron	300	**16800**	**14100**	**66200**	**64900**	**78800**	**9410**	**6840**
Lead	5	**1.74**	**2.66**	0.700 U	0.700 U	**1.07**	**3.46**	**6.41**
Magnesium	NLE	**11300**	**8070**	**6910**	**6790**	**20200**	**3260**	**512**
Manganese	50	**208**	**213**	**277**	**276**	**1380**	**141**	**245**
Nickel (Soluble Salts)	100	**19.4**	**0.976**	0.300 U	0.300 U	**1.10**	**3.94**	**1.28**
Potassium	NLE	**6780 B**	**9110 B**	**10100 B**	**10000 B**	**14700 B**	**2500 B**	**584 B**
Selenium	40	**3.62 B**	2.70 U	2.70 U	2.70 U	2.70 U	2.70 U	**6.98 B**
Sodium	50000	**49700**	**18300**	**50900**	**49200**	**40200**	**5380**	**1160**
Vanadium	NLE	**32.6**	**15.4**	**1.14**	**2.45**	**4.92**	**7.07**	**11.6**
Zinc	2000	**63.4**	**13.5**	**15.2**	**18.3**	**40.2**	**14.3**	**16.4**

[1] Higher of Practical Quantitation Limits (PQLs) & Groundwater Quality Criterion (GWQC) per NJAC 7:9-6, 2005 (* Interim GWQC).

DUP = Duplicate Sample.

ft. bgs = Feet below ground surface.

B = The compound was found in the associated method blank as well as in the sample.

D = Sample was diluted.

E = The compound's concentration exceeds the calibration range of the instrument for that specific analysis.

J = Mass spec and retention time data indicate the presence of a compound however the result is less than the MDL but greater than zero.

U = The compound was analyzed for but not detected.

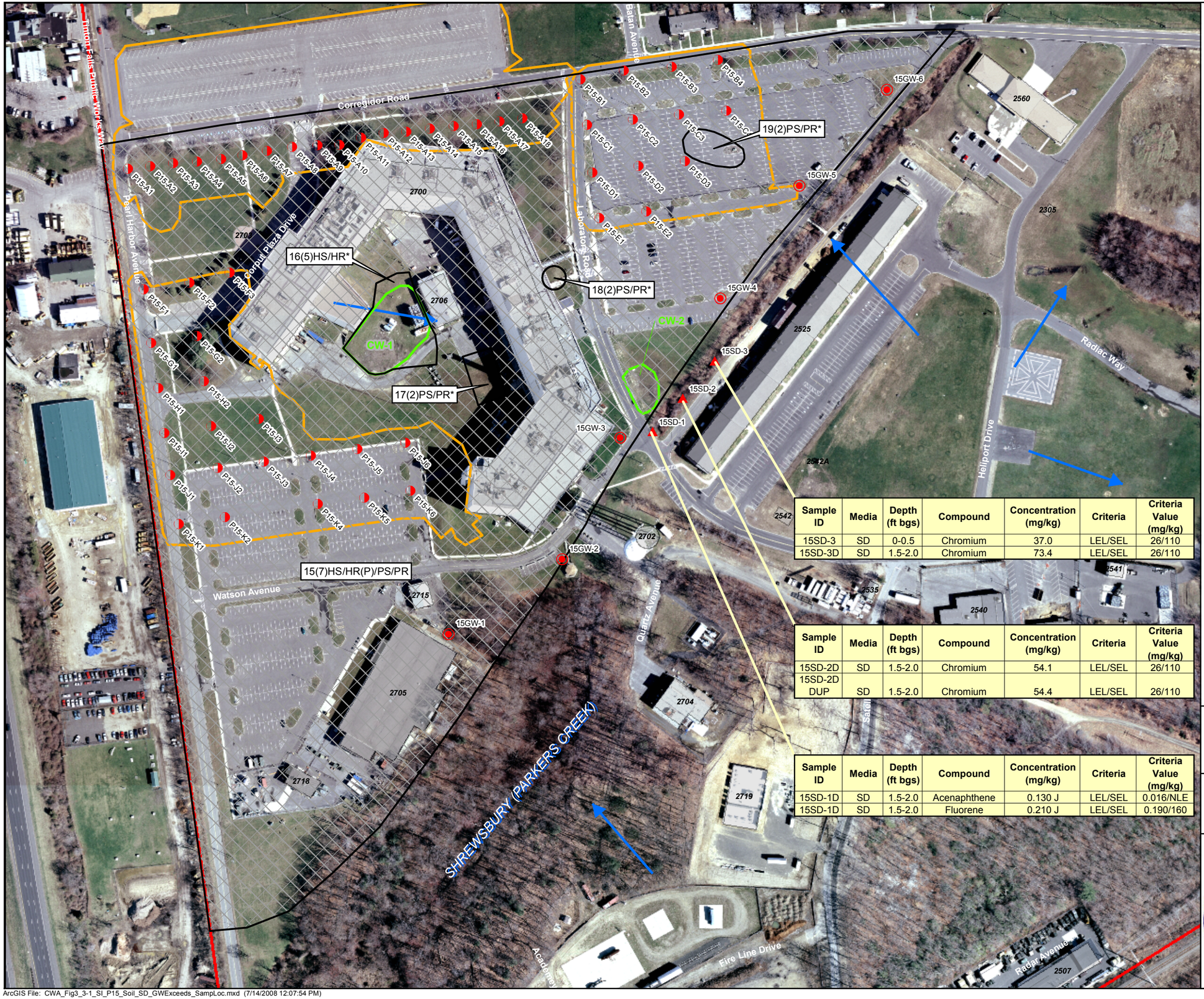
NT = Not tested.

NLE = No limit established.

Bold = Analyte was detected.

Shaded = Concentration exceeds Quality Criteria.

µg/L = micrograms per liter.



Sample ID	Media	Depth (ft bgs)	Compound	Concentration (mg/kg)	Criteria	Criteria Value (mg/kg)
15SD-3	SD	0-0.5	Chromium	37.0	LEL/SEL	26/110
15SD-3D	SD	1.5-2.0	Chromium	73.4	LEL/SEL	26/110

Sample ID	Media	Depth (ft bgs)	Compound	Concentration (mg/kg)	Criteria	Criteria Value (mg/kg)
15SD-2D	SD	1.5-2.0	Chromium	54.1	LEL/SEL	26/110
15SD-2D DUP	SD	1.5-2.0	Chromium	54.4	LEL/SEL	26/110

Sample ID	Media	Depth (ft bgs)	Compound	Concentration (mg/kg)	Criteria	Criteria Value (mg/kg)
15SD-1D	SD	1.5-2.0	Acenaphthene	0.130 J	LEL/SEL	0.016/NLE
15SD-1D	SD	1.5-2.0	Fluorene	0.210 J	LEL/SEL	0.190/160

LEGEND

- Geoprobe Groundwater Sample Location
- Geoprobe Soil Sample Location
- Sediment Sample Location
- Former Barracks Areas Targeted By Geophysical Survey (Electromagnetic followed by Ground Penetrating Radar of Anomalies)
- Generalized Groundwater Flow Direction. Direction of Generalized Groundwater Flow derived from qualitative evaluation of surface topography, surface water features, and pre-existing IRP site groundwater potentiometric maps where available.
- Building
- IRP Site Boundary
- Installation Boundary

ECP PARCEL CATEGORY DEFINITIONS

7 Areas that are not evaluated or require additional evaluation.

* Parcel not included in Site Investigation. Information pertaining to parcels not included in this Site Investigation is presented in the Fort Monmouth Phase I ECP Report (January 2007).

BRAC PARCEL LABEL DEFINITIONS

8(2)PS
- CONTAMINATION DESCRIPTION
  - HS - Hazardous Substance Storage
  - HR - Hazardous Substance Release
  - PS - Petroleum Storage
  - PR - Petroleum Release
  - (P) - Possible Release or Disposal
- CATEGORY NUMBER
- PARCEL NUMBER

N

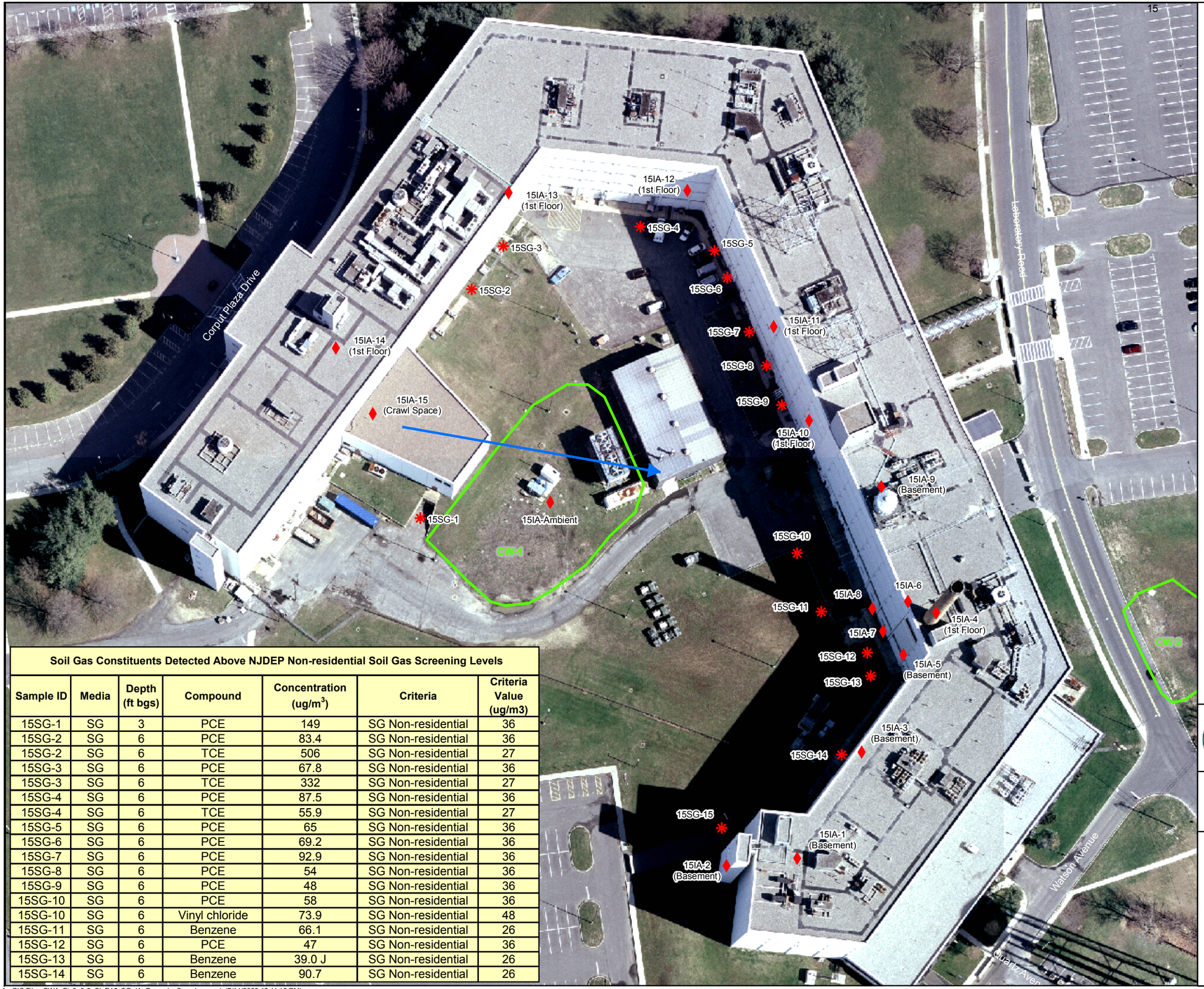
SCALE:
0 100 200 400 Feet

Base Realignment and Closure 2005

U.S. Army Corps of Engineers

Shaw® Shaw Environmental, Inc.

FIGURE 3.3-1
FORT MONMOUTH ECP SITE INVESTIGATION
PARCEL 15 SOIL, SEDIMENT, AND GROUNDWATER SAMPLE LOCATIONS AND CONSTITUENTS OF CONCERN
CHARLES WOOD AREA
FORT MONMOUTH
NEW JERSEY



LEGEND

- Soil-Gas Sample Location
- Indoor Air Sample Location
- Generalized Groundwater Flow Direction. Direction of Generalized Groundwater Flow derived from qualitative evaluation of surface topography, surface water features, and pre-existing IRP site groundwater potentiometric maps where available.
- IRP Site Boundary

N

SCALE:

0 40 80 160 Feet

Soil Gas Constituents Detected Above NJDEP Non-residential Soil Gas Screening Levels

Sample ID	Media	Depth (ft bgs)	Compound	Concentration (ug/m^3)	Criteria	Criteria Value (ug/m3)
15SG-1	SG	3	PCE	149	SG Non-residential	36
15SG-2	SG	6	PCE	83.4	SG Non-residential	36
15SG-2	SG	6	TCE	506	SG Non-residential	27
15SG-3	SG	6	PCE	67.8	SG Non-residential	36
15SG-3	SG	6	TCE	332	SG Non-residential	27
15SG-4	SG	6	PCE	87.5	SG Non-residential	36
15SG-4	SG	6	TCE	55.9	SG Non-residential	27
15SG-5	SG	6	PCE	65	SG Non-residential	36
15SG-6	SG	6	PCE	69.2	SG Non-residential	36
15SG-7	SG	6	PCE	92.9	SG Non-residential	36
15SG-8	SG	6	PCE	54	SG Non-residential	36
15SG-9	SG	6	PCE	48	SG Non-residential	36
15SG-10	SG	6	PCE	58	SG Non-residential	36
15SG-10	SG	6	Vinyl chloride	73.9	SG Non-residential	48
15SG-11	SG	6	Benzene	66.1	SG Non-residential	26
15SG-12	SG	6	PCE	47	SG Non-residential	36
15SG-13	SG	6	Benzene	39.0 J	SG Non-residential	26
15SG-14	SG	6	Benzene	90.7	SG Non-residential	26

Base Realignment and Closure 2005

U.S. Army Corps of Engineers

Shaw® Shaw Environmental, Inc.

FIGURE 3.3-2
FORT MONMOUTH ECP
SITE INVESTIGATION
PARCEL 15 SOIL GAS AND INDOOR AIR SAMPLE LOCATIONS AND CONSTITUENTS OF CONCERN
CHARLES WOOD AREA
FORT MONMOUTH
NEW JERSEY

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